

REMARKS

In response to the Office Action dated July 14, 2000, claims 1, 4, 6-8, 23-28 and 32-33 are canceled, claims 2, 5, 9, 13, 17, 21-22 and 29 are amended, and claims 34-37 are added. Claims 2, 3, 5, 9-22, 29-31 and 34-37 are now active in this application. No new matter has been added.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103

Claims 1, 2, 29, 32 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato et al. '680 (hereinafter, Sato '680) in view of Sato et al. '293 (hereinafter, Sato '293).

The Examiner contends that Sato et al. '680 teaches the steps of claims 1, 29 and 32 except for modifying the projected lines by adding at least one lien to the projected line. However, the Examiner contends that Sato '293 teaches modifying lines by adding at least a line at column 6, lines 50-64, and asserts that it would have been obvious to a person of ordinary skill in the art to modify Sato '680 by adding the method of adding a line to a group of lines as taught by Sato '293 to enable a user to edit and control the quantity of the reduced data generated from the shape expression apparatus of Sato '680.

Claims 3-8, 30 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato '680 in view of Sato '293, and further in view of Letcher, Jr., relied upon to teach defining control points and moving control points along the surface of a model, and deleting at least one line to the projected lines.

Claims 9-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Letcher, Jr.

To expedite prosecution, claims 1, 4, 6-8, 23-28 and 32-33 are canceled, claims 2, 5, 9, 13, 17, 21-22 and 29 are amended, and claims 34-37 are added. Independent claims 9, 13, 17, 21, 22 and 29, as amended, as well as new independent claim 37, recite subject matter patentable over Sato '680, Sato '293 and Letcher, Jr., considered alone or in combination.

In Sato '680, plane patch generator 105 generates new patch planes by connecting patch planes having inclination of normal vectors within a predetermined range (Eqs. (6) and (7)). Thus, an amount of data for representing a three-dimensional form is decreased. Further, the Examiner admits that Sato '680 does not describe "modifying the projected lines".

In Sato '293, an object of data is a two-dimensional form. An object in an image presented as dot data is represented by parameters and the object is edited by operating the parameters. Further, a line is added to modify a two-dimensional form, but this intends to add a new form data to the original two-dimensional form (in correspondence to a prepared three-dimensional form model).

As noted in the Preliminary Amendment of May 18, 2000, Letcher, Jr. describes that "Many types of geometric entities including points, lines, curves, surfaces and solids can be defined, positioned, and edited to build up extremely precise definitions of highly complex objects" (column 1, lines 45-58). "...the relationship which was clearly in the mind of the user at the time line B was created is not retained by the CAGD program (column 1, lines 65-67). From these statements, it is clearly understand that no model or structure of an object exist in the CAGD system at the start of the operation. However, from the above-mentioned geometric entities as parts of an object prepared in the system,

desired geometric entities are selected and combined to construct an object structure. As described at the first step of "Create object" in Fig. 28 and at the first step of "Select entity" in Fig. 29, which shows details of the "Create object" step, entities **are selected and combined to create an object**. However, the object exists, not in the system, but only in the mind of the user of the system.

Figs. 3 to 24 of Letcher, Jr. show the various entities. Fig. 27 shows a three-dimensional model of an object **constructed** with the selected entities. Explanation as to how the model is constructed with entities is provided at column 15, line 50 to column 16, line 29. In the explanation, there is no description that a projected point, curve, surface or snake is used for the model of the yacht depicted in Fig. 27.

An essential difference between the system of Letcher, Jr. and the present invention is that the lines and curves of the model surface (of Fig. 27) are **not** created by projection. Table III of the reference shows a list of the entities which are selected and combined to create an object such as the three-dimensional model of Fig. 27. If a part other than what is included in Table II is necessary, this part may be created based on the entities in the list, as described at column 12, line 28+. The reference describes various processing such as mirroring, projection and rotation. However, this only creates a new entity based on the available entities, and the new entity is only a part of the object; edition or the like is performed thereafter.

As to independent claim 29 of the present application, the first set and the second set of contours are related to an obtained three-dimensional form model. That is, the modified three-dimensional form model itself is not modified, but a set of contours is modified. On the other hand, Sato '293 **edits the obtained two-dimensional form itself**

by modifying the obtained two-dimensional image; for example, by adding a line thereto.

As to independent claims 9, 13, 17, 21, 22 and 37, Letcher, Jr. does not describe "projecting two-dimensional horizontal closed curves encircling the three-dimensional form model with leaving a space to the three-dimensional form model".

In view of the above, claims 2, 3, 5, 9-22 and 29-31, as amended and new claims 34-37 are patentable over the applied prior art references, considered alone or in combination, and their allowance is respectfully solicited.

CONCLUSION

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

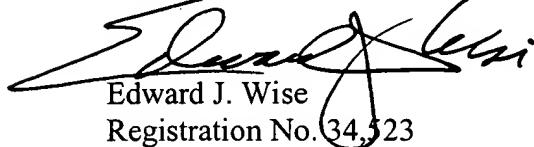
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this

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paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY



The image shows a handwritten signature in black ink. The name "Edward J. Wise" is written in a cursive style, with "Edward" on top and "J. Wise" on the bottom. A large, stylized letter "E" is positioned above the signature, and a smaller "J." is to its right.

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